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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/559,528

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Claudia Maria de Lacerda Baptista

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SUGHRUE MION, PLLC  
2100 PENNSYLVANIA AVENUE, N.W.  
SUITE 800  
WASHINGTON, DC 20037

EXAMINER

NGUYEN, HUY TRAM

ART UNIT

PAPER NUMBER

1797

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/559,528	<b>Applicant(s)</b> BAPTISTA ET AL.	
	<b>Examiner</b> HUY-TRAM NGUYEN	<b>Art Unit</b> 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-4,8,11,20,22,27,28 and 31-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4,8,11,20,22,27,28 and 31-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed on December 22, 2008 regarding Gross reference on failing to suggest the claimed process of producing LPG have been fully considered but they are not persuasive. Examiner disagrees with this assessment since Table 2 of Gross shows the process of producing gasoline and LPG. The claimed process does not limit the production to just LPG.

2. Applicant's arguments, see the Remarks regarding the dispersion stream being injected with feed B, filed December 22, 2008 have been fully considered and are persuasive. Therefore, the final rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of **Gross et al. (US Patent No. 4,218,306)**, **Adornato et al. (US Patent No. 5,954,942)** and **Zhang et al. (US Patent No. 6,416,656 B1)**.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-4, 8, 11, 20, 22, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gross et al. (US Patent No. 4,218,306) in view of Adornato et al. (US Patent No. 5,954,942)**.

Regarding Claim 1, Gross et al. reference discloses a process for the fluid catalytic cracking of mixed feedstocks of hydrocarbons feeds-from different sources, in a riser reactor (**Abstract**) and in the presence of a zeolitic catalyst, under cracking conditions (**Column 1, Lines 64-67 – zeolite catalyst**), for producing light products such as LPG (**Table 2**), said mixed feeds-feedstocks comprising feeds A and B, with

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feed B being more refractory to cracking, wherein said process comprises the simultaneous segregated injections of said feeds A and B in distinct riser locations

**(Abstract)**, and includes the steps of:

a) injecting feed A at a location at the bottom of the riser reactor, which sets the base of the riser reactive section, with a temperature rise ranging from 10 to 50°C

**(Column 4, Lines 48-52)**; and

b) injecting feed B at an amount of from 5 to 50 wt% based on the total mixed feedstock **(Table 2, 49% by mass of secondary injection feed)**, downstream

**(Abstract)**, after maximum LPG production from feed A, at one or more riser locations between 10% and 80% of the riser reactive section **(Abstract and Figure 1, 10-30 feet or 6-17% total height of the riser)**; and

a temperature equal to or higher than the injection temperature of feed A **(Table 2, Riser Mix Temperature)**.

However, Gross et al. reference does not disclose the use of dispersion steam from 5 to 20% in the feed B. Adornato et al. reference discloses that 3, 4, or 5wt % or even more steam could be added to the heavy feed to improve atomization **(Column 1, Lines 47-57)**. It would have been obvious to one having ordinary skill in the art at the time the invention was made to add steam to the heavy feed as taught by Adornato et al., since Adornato et al. states at **Column 1, Lines 47-57** that such a modification would improve cracking efficiency and reduce hydrocarbon partial pressure.

Regarding Claim 2, Gross et al. and Adornato et al. references disclose the process according to claim 1, wherein feed A is a heavy distillation gasoil (HVGO) **(Column 5, Lines 6-9 and Table 1 – fresh feed & low aromatic index gas oil).**

Regarding Claim 3, Gross et al. and Adornato et al. references disclose the process according to claim 1, wherein feed B is produced by a thermal or by a physical separation process **(Gross et al. – Column 3, Lines 55-60 – produce of thermal cracking).**

Regarding Claim 4, where/how the feed B produced does not distinguish the process claim of the invention over the process of Gross et al. and Adornato et al.

Regarding Claim 8, Gross et al. and Adornato et al. references disclose the process according to claim 1, wherein the injection riser location of feed B is between 25% and 50% of the riser reactive section **(Gross et al. – Figure 1).**

Regarding Claim 11, Gross et al. and Adornato et al. references disclose the process according to claim 1, wherein the overall catalyst circulation rate is kept nearly constant during the cracking of feeds A and B **(Gross et al. – Table 2 - Constant feed rate).**

Regarding Claim 20, Gross et al. and Adornato et al. references disclose the process according to claim 1, wherein the temperature rise in the mixing region between feed A and the regenerated catalyst is of from 10°C to 50°C, provided by the injection of feed B in a riser location downstream of the injection location of feed A, and is in the range of from 520°C to 650°C. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the claimed temperature ranges,

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since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding Claim 22, Gross et al. and Adornato et al. references disclose the process according to claim 1, wherein the riser outlet reaction temperature is in the range of from 520°C to 590°C (**Gross et al. – Column 4, Lines 7-9 – 850°F – 1050°F**).

Regarding Claim 27, Gross et al. and Adornato et al. references disclose the process according to claim 1, wherein the flow of the reactive catalyst to oil mixture is upwards (**Gross et al. – Column 3, Lines 51-52**).

Regarding Claim 28, Gross et al. and Adornato et al. references disclose the process according to claim 1 except for the flow of the reactive catalyst to oil mixture is downwards. It would have been obvious to one having ordinary skill in the art at the time invention was made to observe some downward flow of the reactive catalyst in the riser due to the gravity.

7. Claims 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gross et al. (US Patent No. 4,218,306) in view of Adornato et al. (US Patent No. 5,954,942) and Zhang et al. (US Patent No. 6,416,656 B1)**.

Regarding Claims 31, 32 and 33, Gross et al. and Adornato et al. references disclose the process according to claim 1 except for the catalyst comprises a Y, a ZSM-5 zeolite, or a combination of Y and ZSM-5 zeolites in any amount. Zhang et al. reference discloses these catalysts for being used in catalytic cracking process (**Zhang et al. – Column 1, Lines 8-9 and Column 3, Lines 4-5**). It would have been obvious to

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one having ordinary skill in the art at the time the invention was made to use the claimed zeolites since Zhang et al. reference states at **Column 1, Lines 7-12** that such modification would increase simultaneously the yields of diesel oil and liquefied gas.

Regarding Claim 34, Gross et al., Adornato et al. and Zhang et al. references disclose the process according to claims 31, 32, or 33, wherein the zeolite catalysts comprise zeolites as additives (**Zhang et al. – Column 2, Lines 64-67 – active component**).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUY-TRAM NGUYEN whose telephone number is (571)270-3167. The examiner can normally be reached on MON- THURS: 6:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HTN  
1/6/09

/Walter D. Griffin/  
Supervisory Patent Examiner, Art Unit 1797